III. REMARKS

Claims 1-26 are pending in this application. By this Amendment, each of claims 1, 9, 19, 24, and 26 has been amended. Claim 25 has been withdrawn from further consideration. Reconsideration in view of the above amendments and the following remarks is respectfully requested. Applicant does not acquiesce in the correctness of the rejections and reserves the right to present specific arguments regarding any rejected claims not specifically addressed. Further, Applicant reserves the right to pursue the full scope of the subject matter of the claims in a subsequent patent application that claims priority to the instant application.

Applicant appreciates the courtesies the Examiner extended to Applicant's Representative during their telephone conversation of 19 December 2005. The substance of that conversation is included in the above amendments and the following remarks. Specifically, Applicant's Representative asserted that U.S. Patent No. 6,220,602 to Webster et al. teaches away from U.S. Patent No. 6,173,958 to Dinc et al. and that the references cannot, therefore, be combined. Applicant's Representative further asserted that Webster et al. teaches away from U.S. Patent No. 6,353,263 to Gail et al. and similarly cannot be combined. The Examiner responded that Webster et al. was cited simply for it's teaching of the equivalence of brush seals and leaf seals. Examiner indicated that a proposed amendment to claims 1, 9, 19, and 26 to recite a leaf seal comprising a fixed portion angled relative to a free portion in both an operative and inoperative state may sufficiently distinguish the claims from the teachings of Dinc et al.

In the Office Action, claims 1, 3-5, 8-17, 19, and 21-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,173,958 to Dinc et al. in view of U.S. Patent No. 6,220,602 to Webster et al. The Office concedes that Dinc et al. do not disclose a leaf seal as claimed, but argues that Webster et al. disclose a brush seal and a leaf seal as equivalents. Specifically, the Office cites column 7, lines 44-45 of Webster et al., which read: "The seal 120

comprises a stator structure 122 surrounding the shaft 32 and a brush, or leaf, seal arrange-[ment]..."

Applicant notes, however, that the portion of Webster et al. cited by the Office, which describes the Webster et al. device in its inoperative state, continues: "...comprising a pair of radially extending supporting plates 124 and 126 and a plurality of bristles, or leaves, 128 arranged between the supporting plates 124 and 126. The bristles, or leaves, 128 are arranged to extend circumferentially and radially and such that the radially inner ends of the bristles, or leaves, 128 contact the surface of the shaft 32." Column 7, lines 46-51 (emphasis added).

Applicant asserts that the teachings of Webster et al. are inapplicable to the teachings of both Dinc et al. and the present invention. In an operative state of their device, Webster et al. teach a deliberate forcing of the "leaf" seal away from the shaft in order to provide clearance. "In operation the repulsive force between the bristles, or leaves, 128 and the magnet or electrically conducting member 130 pushes the bristles, or leaves, 128 away from the shaft 32 to form a clearance to reduce wear of the bristles, or leaves, 128 and the shaft 32." Webster et al. at column 7, lines 60-64 (emphasis added).

Contrarily, Dinc et al. teach a deliberate maintenance of contact between bristles and a rotating shaft in the device's operative state. "The shaft 72 includes a collar 75 having a curved surface 76 on the same side of the frame 70 as the flange 74. In this manner, when the tips of the bristles wear, the differential pressure causes the bristles to bear against the curved surface of collar 75 such that the tips seal against a higher point along the collar surface 76. Thus, a continuous sealing action is provided, notwithstanding wear of the brush bristles." Dinc et al. at column 7, lines 7-14 (emphasis added). See also Dinc et al. FIG. 10.

Thus, Webster et al. teach away from Dinc et al. In fact, Applicant asserts that if one were to combine Webster et al.'s teaching of a radially-oriented "leaf" seal with Dinc et al.'s

teaching of a brush seal in contact with a rotating shaft, the result would be frictional heating and instant deformation failure similar to that which occurs with fixed labyrinth seal teeth. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious." MPEP 2143.01, citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). "The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts." *Id.* (emphasis added).

The teachings of Webster et al. are also inapplicable to the present invention, wherein a clearance is reduced in an operative state, as compared to an inoperative state. See, e.g., FIGS. 21A-C of the application.

As noted above, during the 19 December 2005 interview, Examiner stated that Webster et al. was cited simply to show equivalence between brush seals and leaf seals. However, the "leaf" seal of Webster et al. is typical of known leaf seals and clearly distinct from the leaf seal of the present invention, as evidenced by the difference in function of the Webster et al. seal, described above. Applicant further submits that this difference in function is attributable to a difference in structure between known leaf seals and the leaf seal of the present invention. No known leaf seal cited by the Office or known to Applicant includes a preformed angle between a free portion and a fixed portion of each leaf member. The reason for this situation is that in order to function properly and to avoid structural failure of the device, known leaf seals must remain substantially unbent, and typically include a radially-oriented support member to maintain the leaf seal in such a position. Bending of known leaf seals results in an overlap of the free portions of individual leaf members, which is avoided in the present invention. In addition, bending of known leaf seals results in increased frictional heating, and eventual failure of the leaf seal,

which is also avoided by the present invention. Accordingly, no one would ever attempt to bend a leaf seal as taught by Dinc et al. as the Office suggests.

The leaf seal of the present invention, however, includes staggered leaf seal members having an angle between their free portions and their fixed portions. Such an arrangement is possible due to the unique shape of the leaf seal members, particularly the free portions of the leaf seal members. See, e.g., FIG. 7 of the present application, wherein a bend may be formed along line 34 between fixed end 28 and free end 30 due to the presence of a slot 26 between seal members 24. Applicant respectfully asserts that the Office has failed to recognize the significance of a leaf seal having a preformed angle between the free portions and the fixed portions of its leaf seal members, as recited in each of the rejected claims. In addition, Applicant submits that the Office is improperly expanding a very narrow statement by Webster et al. to argue something that does not make sense. Applicant submits that any suggestion of equivalence must be interpreted in view of the rest of the prior art and, more importantly, the specific setting and function in which the suggestion is made. In Webster et al., the alleged suggestion is made in a setting in which no structural conflicts would result from the substitution. In stark contrast, application of a leaf seal in Dinc et al. is impossible because the movement of the leaf members would cause them to move into interference with one another in an overlapped position, which would lead to their destruction. That is, the free ends of the leaf members would continually interfere with one another as they were bent into the operative state of Dinc et al. Applicant submits therefore that no one with ordinary skill in the art would ever attempt what the Office alleges the prior art suggests because of the above-described problem.

Despite the above arguments, each of claims 1, 9, 19, 24, and 26 has been amended to more clearly recite the leaf seal of the present invention as comprising a fixed portion angled

relative to a free portion in both an operative and inoperative state. Claim 24 has been further amended to more clearly recite that the leaf seal is a frustoconical leaf seal.

For each of the reasons given above, Applicant asserts that none of the rejected claims is obvious in view of Dinc et al. or Webster et al., individually or in combination, and respectfully requests withdrawal of the rejection.

In the Office Action, claims 2, 18, 20, and 26 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Dinc et al. in view of Webster et al. as applied to claims 1, 9, and 19, and further in view of U.S. Patent No. 4,813,608 to Halowach et al. Applicant asserts, however, that each of the arguments above with respect to Dinc et al. in view of Webster et al. are equally applicable to the rejection of claims 2, 18, 20, and 26. In addition, Applicant asserts that the amendments of claims 1, 9, 19, and 26 above obviate the basis for the rejection. Accordingly, for each of these reasons, Applicant respectfully requests withdrawal of the rejection.

In the Office Action, claims 6 and 7 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Dinc et al. in view of Webster et al., as applied to claim 1, and further in view of U.S. Patent No. 5,108,116 to Johnson et al. Applicant asserts, however, that the Office has misinterpreted Johnson et al. Specifically, Applicant asserts that rather than teaching a "plurality of staggered leaf seal members [ ] provided by a spiral of a single strip of material," as recited in claim 6, Johnson et al. teaches a plurality of slotted diaphragm members 20, each formed from separate spiral pieces of material. See FIGS. 2-5 of Johnson et al.

Applicant further asserts that each of the arguments above with respect to Dinc et al. in view of Webster et al. are equally applicable to the rejection of claims 6 and 7. In addition, Applicant asserts that the amendment of claim 1 above obviates the basis for the rejection.

Accordingly, for each of these reasons, Applicant respectfully requests withdrawal of the rejection.

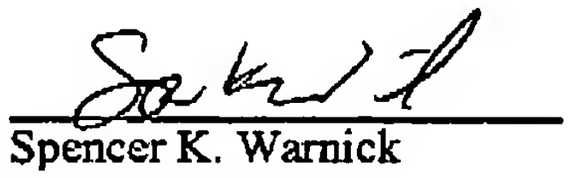
In the Office Action, claim 24 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,353,263 to Gail et al. in view of Webster et al. Applicant asserts, however, that the teachings of Webster et al. are inapplicable to Gail et al. for the same reasons that the teachings are inapplicable to Dinc et al., described above. Gail et al. describe a brush seal having bristles in contact with a rotor in its operative state. "The end of the bristle sections (7) run against the sealing area (U) of the rotor (2). A bending clearance (13) is provided between the shaft sections (6) of the bristles (3) and the support plate (9). Between the bristle sections (7) and across the entire length of the support section (11) of the support plate (9) there is a gap (12) which closes if there is differential pressure on opposite sides of the bristles (3)." Gail et al. at Abstract (emphasis added). See also, Gail et al. FIGS. 1-6.

Thus, the teachings of Webster et al., wherein brushes are pushed away from a rotor to provide a clearance and therefore reduce wear on the brushes, are contrary to the teachings of Gail et al. As above with respect to Dinc et al., if one were to combine Webster et al.'s teaching of a radially-oriented "leaf" seal with Gail et al.'s teaching of a brush seal in contact with a rotating shaft, the result would be frictional heating and instant deformation failure similar to that which occurs with fixed labyrinth seal teeth. Accordingly, Applicant asserts that Webster et al. teach away from Gail et al., that claim 24 is therefore not obvious in view of Webster et al. or Gail et al., individually or in combination. In addition, Applicant asserts that the above amendment to claim 24 obviates the basis for the rejection. For each of the reasons above, Applicant respectfully requests withdrawal of the rejection.

In view of the foregoing, Applicant respectfully requests withdrawal of the rejections and allowance of the application. Should the Examiner require anything further from Applicant, the

Examiner is invited to contact Applicant's undersigned representative at the number listed below.

Respectfully submitted,



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